

# PATENT SPECIFICATION

(11) 1213193

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## DRAWINGS ATTACHED

- (21) Application No. 8985/68 (22) Filed 23 Feb. 1968  
(45) Complete Specification published 18 Nov. 1970  
(51) International Classification B 42 d 15/02  
(52) Index at acceptance  
B6A 26W 42A  
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## (54) IDENTIFICATION CARD

(71) I, EIZO KOMIYAMA, a citizen of Japan, residing at 510, 1-chome Nakayama-cho, Ichikawa-shi, Chiba-ken, Japan, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to an identification card suitable for use, for example, as a credit card.

The credit card system enables customers to make purchases at a store without the necessity of carrying cash. Each customer carries a credit card bearing the customer's registered number and signature and a purchase can be made by presentation of the credit card and completion or signature of an appropriate form or bill. This system has the disadvantage that the registered number and signature on the credit card are clearly visible and if the card is lost there is a risk of illicit use by another person.

Similarly in the conventional bank deposit system, a ledger for each depositor is kept by a bank while a bank book is kept by each depositor. And with this system each depositor has his own signature registered with the bank on the basis of which signature the subsequent business routines including withdrawal of money are performed. To withdraw money, a customer fills in the authorized form with his signature and the amount to be withdrawn and presents this authorized form to the bank clerk together with his bank book. The clerk identifies the signature on the authorized form with that registered on a ledger of the bank before making payment. This deposit system, therefore, requires that the ledgers should be in the custody of the bank and these ledgers should be always arranged so as to be readily selected. Recently some banks have been attempting to improve their business efficiency by adopting computers, but the computers have not still been effectively utilized enough to replace the ledgers completely. This is because such a system still has the same risk as attaches to

the credit card in as far as each depositor keeps his own bankbook which, if lost, can be abused by another person.

For the purpose of eliminating this risk which is encountered by conventional systems of credit purchase and bank deposit, the invention provides instead of the conventional credit card or bankbook bearing a registered number and signature or as a cover of a conventional bankbook, and identification card including a signature entered on a predetermined location of said card and a coloured filter overlaid on said predetermined location for veiling over said signature under visible rays, the signature being substantially invisible under visible rays but visible when exposed to infra-red or ultra-violet rays.

The invisibility of the signature on the identification card under visible rays prevents another person, even when the card is lost, from recognizing what matter has been entered thereon, so that the card may be free from any unauthorized use. When this identification card is employed in a credit purchase system at a store, a customer may present his or her own identification card at a counter and at the same time fill an authorized form with his or her own registered number and signature. Then the staff of the store make a comparison between the card presented and the filled form through a special identification device to identify the customer before selling goods to said customer. When the identification card is employed in the bank deposit system, each customer may keep only this card itself or a bankbook using this card as its cover and in any case the bank can eliminate the ledgers. The bank, then, may replace the conventional ledger with computer tape storing all the records, such as the deposit amount of each client, and provide the bank clerk with the authorized form into which each customer may make entry of his or her own account number, amount of deposit or withdrawal and signature. The bank clerk can identify the invisible signature on the identification card or the bankbook using such a card as its

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cover which has been presented by the customer with the signature put on said authorized form and after affirmation of identity perform the actual business of deposit or withdrawal.

The invention will now be described in more detail with the aid of examples illustrated in the accompanying drawings, in which:—

10 Figure 1 is a front elevation of an identification card embodying the invention;

Figure 2 shows the front of the card of Figure 1 before it is covered with a veiling filter;

15 Figures 3 to 5 show identification cards suitable for an identification device using ultraviolet rays; each being shown in longitudinal section taken along a line A—A of Figure 1;

20 Figure 6 illustrates in a schematic manner how the identification device using ultraviolet ray is used;

Figure 7 shows in a sectional view taken along line A—A another identification card suitable for another identification device using infra-red rays;

25 Figure 8 illustrates in a schematic manner how the identification device using infra-red ray is used; and

30 Figure 9 shows the signature areas under identification.

In the identification cards shown in the drawings a card body 1 is formed of millboard or synthetic resin sheet and a signature 2 may be directly put on the card body 1 or on pasteboard applied to the card body 1. A coloured filter 3 is applied over the signature 2 so that this signature 2 is invisible under visible rays. Figure 3 to 5 illustrate arrangements such that the signature 2 can be seen by exposing it to ultraviolet rays.

35 In Figure 3, the card body 1 is formed of a synthetic resin sheet and is provided with a recess 4 over part of its surface, into which a pasteboard 6 coated with a fluorescent whitener film 5 is engaged and bound. The signature 2 is entered on the fluorescent whitener film 5. This signature 2 must be entered using ink which does not transmit ultraviolet rays, an ink containing titanium white. Although it is most preferable to use a colourless ink, light-coloured ink is better to enable a customer to enter his signature with good recognizability.

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The lighter the colour of the ink is, the better is the invisibility provided by the coloured filter 3. The filter 3 applied over the fluorescent whitener film 5 bearing the signature 2 is of substantially the same colour as signature 2 and must be sufficiently coloured to veil over the signature 2 under visible rays, while transmitting ultraviolet rays. A transparent protective sheet 7 is applied all over the card body 1 to prevent the filter 3 from peeling off.

In the embodiments shown in Figures 4 and 5, the card body 1 is formed of millboard and has no recess 4 thereon, so that a card of this type is especially convenient for use as the cover of a bankbook. Figure 4 shows an identification card comprising the card body 1, the pasteboard 6 have a fluorescent whitener film 5 applied over its surface, the signature 2 entered with the said ink on the film 5, and the filter 3 applied over the signature 2. Figure 5 shows another identification card comprising the card body 1 directly coated with fluorescent whitener so to provide the fluorescent whitener film 5, the signature entered with the said ink on the film 5, and the filter 3 applied over the signature 2.

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Figure 6, an ultraviolet lamp 8, a reflector 9, a collecting lens 10, an ultraviolet filter 11, another reflector 12 and a card support 13 are so arranged that ultraviolet rays from the ultraviolet lamp 8 are brought to the card support 13. After placing an authorized form 14 signed by the customer in position, the card C embodying this invention is overlaid on the authorized form so that signatures of both can be readily compared with each other.

Thus the signature 2 on the identification card as illustrated in Figures 3 to 5 is compared by means of ultraviolet rays using the identification device of Figure 6 to the signature 15 on the form 14 (see Figure 9). This operation of identification is based on the fact that the signature 15 on the form 14 is distinctively visible under visible rays while the signature 2 on the card C can be seen by exposing to ultraviolet rays. The filter 3 permits all ultraviolet rays to pass through and therefore the fluorescent whitener film 5 is exposed to ultraviolet rays. As a result the fluorescent whitener film 5 emits fluorescence which is at visible frequencies and which passes back through the filter 3 to be seen by a viewer. On the other hand, the area of signature 2 emits no fluorescence since this area is made of ink which does not transmit ultraviolet rays to the film 5. As a result, the signature is seen as dark by contrast with the fluorescent whitener film 5 emitting fluorescence. Thus the signature 15 on the form 14 can be effectively compared with the signature 2 on the card C.

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Referring now to Figure 7 which illustrates another embodiment of the invention using infra-red rays for recognizing the signature 2, the card body 1 is formed of synthetic resin sheet and provided with a recess 4 similar to that in the embodiment illustrated in Figure 3. A strip of paper 16 is engaged and applied into said recess 4 and the signature 2 is entered on said strip of paper 16. This signature 2 must be made of ink which absorbs infra-red rays, such as China ink and black drawing ink. Then the

coloured filter 3 is applied over the signature 2 to cover up the signature 2 and this filter 3 permits infra-red rays to pass through. In addition, the transparent protective sheet 7 is applied all over the card body 1 in order to prevent the filter 3 from peeling off.

Figure 8 illustrates a device for identifying the signature 2 on the identification card of Figure 7 with the signature 15 on the authorized form 14 of department store or bank. This identification device comprises an infra-red ray emitting portion, a card support and observation means. The infra-red ray emitting portion consists of an infra-red lamp 17 and a collecting lens 18. The observation means 19 converting infrared rays into visible condition consists of an image tube 20, an objective lens 21, an eye lens 22 and a screen 23 of said image tube 20. The card support 24 for supporting the card C and the authorized form is opposed to the eye lens 21 of said observation means 19 and so located that the card support 24 is exposed to infrared rays emitted from said infrared lamp 17.

When the signature 2 on the identification card as shown in Fig. 7 is to be compared with the signature 15 on the authorized form 14 by means of the identification device as shown in Fig. 8, the authorized form 14 is placed on the card support 24 and the identification card C is overlaid on the form 14 in such an arrangement that both signatures are effectively identified to each other. Then, the infrared lamp 17 is lighted. Emitted infrared rays are reflected by the authorized form 14 except the area of signature 15, while, in respect to the identification card, the emitted infrared rays pass through the transparent protective sheet 7 and the filter 3 and are reflected by the strip of paper except the area of signature 2. As a result, by observing infrared rays re-

flected at the card support 24 through the image tube 20 included in observation means 19, images of both signatures 2 and 15 appear on the screen 23 of the image tube 20 as illustrated in Fig. 9. Identification can be easily carried out by comparing these images of both signatures 2 and 15.

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#### WHAT I CLAIM IS:—

1. An identification card including a signature entered on a predetermined location of said card and a coloured filter overlaid on said predetermined location for veiling over said signature under visible rays, the signature being substantially invisible under visible rays but visible when exposed to infra-red or ultraviolet rays.

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2. An identification card as claimed in claim 1, in which the signature is made of ink which does not transmit ultraviolet rays.

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3. An identification card as defined in claim 2, in which the signature is written on a surface which fluoresces under ultraviolet rays.

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4. An identification card as defined in claim 2 or 3, in which the colour of the signature is substantially identical to that of the filter.

5. An identification card as claimed in claim 2, 3 or 4, in which the signature is in a light colour.

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6. An identification card as defined in claim 1, in which the signature is made of ink which reflects infra-red rays or does not permit infra-red rays to transmit therethrough.

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7. An identification card substantially as described with reference to Figures 1 and 2 with Figures 3, 4 or 5 or to Figure 7 of the accompanying drawings.

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Fig.1.

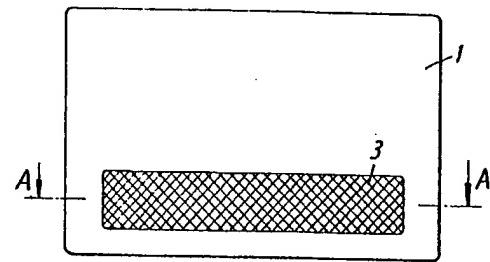


Fig.2.

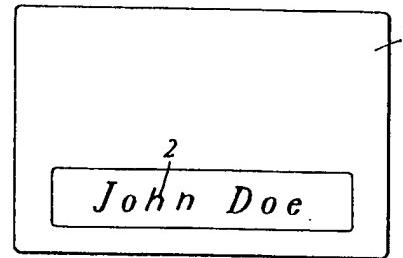


Fig.3.



Fig.4.

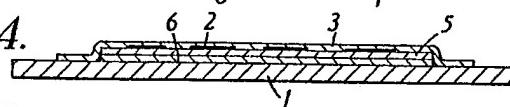


Fig.5.



1213193 COMPLETE SPECIFICATION

2 SHEETS This drawing is a reproduction of  
the Original on a reduced scale  
Sheet 2

Fig.6.

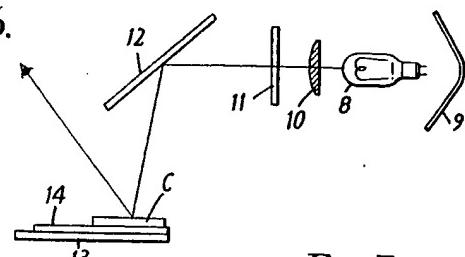


Fig.7.

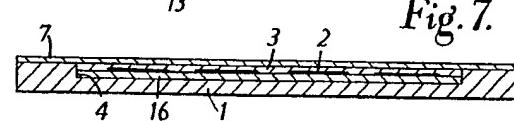


Fig.8.

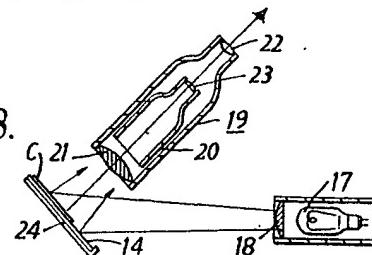


Fig.9.

